# Engineering Interpretations

## **Chemical Properties**

This table shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

**Properties** 

**DEPTH** to the upper and lower boundaries of each layer is indicated.

**SOIL REACTION** is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory.

**SALINITY** is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at typical sites of nonirrigated soils.

This subsection includes:

• (a) Chemical Properties

Miller County, Missouri Chemical Properties of the Soils

| Map symbol                             | <br>  Depth | <br>  Cation | <br> Effective | <br>  Soil | <br> Calcium | Gypsum | Salinity | <br>  Sodium |
|--|-------------|--------------|----------------|------------|--------------|--------|----------|--------------|
| and soil name                          |             | exchange     | cation         | reaction   | carbon-      | İ      |          | adsorp-      |
|  |             | capacity     | exchange       |            | ate          |        |          | tion         |
|  |             |              | capacity       | <br>       |              |        |          | ratio        |
| ······································ | In          | meq/100 g    | <br> meq/100 g | <br>  рН   | Pct          | Pct    | mmhos/cm | _  <br> <br> |
| 15002:                                 |             | <br>         | <br>           | <br>       | ]<br>        |        |          |              |
| McGirk                                 | 0-8         | 8.0-16       | 8.0-16         | 5.1-7.3    | j o j        | 0      | 0        | j o          |
|  | 8-15        | 10-20        | 10-20          | 4.5-6.0    | 0            | 0      | 0        | 0            |
|  | 15-45       | 20-35        | 18-26          | 4.5-7.3    | 0            | 0      | 0        | 0            |
|  | 45-80       | 20-30        | 18-26          | 4.5-7.8    | 0            | 0      | 0        | 0            |
| 54002:                                 |             | <br>         | <br>           | <br>       | <br>         |        |          |              |
| Freeburg                               | 0-7         | 14-20        | 12-18          | 4.5-7.3    | 0            | 0      | 0        | 0            |
|  | 7-60        | 13-29        | 11-27          | 4.5-7.3    | 0            | 0      | 0        | 0            |
| 54007:                                 |             | <br>         | <br>           | <br>       | <br>         |        |          |              |
| Freeburg                               | 0-8         | 8.0-15       | 6.0-14         | 4.5-7.3    | 0            | 0      | 0        | 0            |
| 5 5                                    | 8-18        | 6.0-14       | 4.0-12         | 4.5-6.5    | 0            | 0      | 0        | 0            |
|  | 18-37       | 10-25        | 8.0-23         | 4.5-5.5    | j o j        | 0      | 0        | 0            |
|  | 37-65       | 10-22        | 8.0-20         | 4.5-7.3    | 0            | 0      | 0        | 0            |
| 70008:                                 |             | <br>         | <br>           | <br>       | <br>         |        |          |              |
| Goss                                   | 0-6         | 10-31        | 7.0-23         | 4.5-6.5    | j o j        | 0      | 0        | 0            |
|  | 6-19        | 6.0-12       | 3.7-9.0        | 4.5-6.5    | 0            | 0      | 0        | j o          |
|  | 19-60       | 9.0-25       | 7.0-20         | 4.5-7.3    | 0            | 0      | 0        | j o          |
|  | 60-80       | 25-58        | 20-45          | 4.5-7.3    | 0            | 0      | 0        | 0            |
| 70009:                                 |             | <br>         | <br>           | <br>       | <br>         |        |          |              |
| Goss                                   | 0-6         | 10-31        | 7.0-23         | 4.5-6.5    | j o j        | 0      | 0        | 0            |
|  | 6-19        | 6.0-12       | 3.7-9.0        | 4.5-6.5    | 0            | 0      | 0        | 0            |
|  | 19-60       | 9.0-25       | 7.0-20         | 4.5-7.3    | 0            | 0      | 0        | 0            |
|  | 60-80       | 25-58        | 20-45          | 4.5-7.3    | 0            | 0      | 0        | 0            |
| 70023:                                 |             | <br>         | <br>           | <br>       | [<br>        |        |          |              |
| Eldon                                  | 0-9         | 8.0-25       | 6.0-19         | 4.5-7.3    | 0            | 0      | 0        | 0            |
|  | 9-17        | 12-30        | 7.0-25         | 4.5-7.3    | j o j        | 0      | 0        | j o          |
|  | 17-60       | 17-30        | 13-20          | 4.5-7.3    | 0            | 0 1    | 0        | 0            |

Miller County, Missouri Chemical Properties of the Soils

| 70024:  Goss                          | 0-6<br>6-19<br>9-60<br>0-80<br>0-3<br>3-8<br>8-60 | <br> meq/100 g<br>  10-31<br>  6.0-12<br>  9.0-25<br>  25-58<br>  15-40<br>  15-40<br> | capacity<br>                                    | 4.5-6.5<br>4.5-6.5<br>4.5-7.3<br>4.5-7.3<br>5.1-7.8    | Pct     0     0     0     0     0     0 | Pct                                   | mmhos/cm  0 0 0 0 0 0 |                    |
|---------------------------------------|---|--|---|--|---|---------------------------------------|-----------------------|--------------------|
| 70028:  Moko                          | 6-19<br>9-60<br>0-80<br>0-3<br>3-8                | 6.0-12<br>  9.0-25<br>  25-58<br> <br>  15-40<br>  15-40                               | 3.7-9.0<br>7.0-20<br>20-45<br>15-45<br>15-40    | 4.5-6.5<br>4.5-7.3<br>4.5-7.3<br>5.1-7.8               | 0   0   0   0   0   0   0   0   0   0   | 0   0   0   0   0   0   0   0   0   0 | 0 0 0                 | 0 0 0              |
| Goss                                  | 6-19<br>9-60<br>0-80<br>0-3<br>3-8                | 6.0-12<br>  9.0-25<br>  25-58<br> <br>  15-40<br>  15-40                               | 3.7-9.0<br>7.0-20<br>20-45<br>15-45<br>15-40    | 4.5-6.5<br>4.5-7.3<br>4.5-7.3<br>5.1-7.8               | 0   0   0   0   0   0   0   0   0   0   | 0   0   0   0   0   0   0   0   0   0 | 0 0 0                 | 0 0 0              |
| 70028:  Moko                          | 6-19<br>9-60<br>0-80<br>0-3<br>3-8                | 6.0-12<br>  9.0-25<br>  25-58<br> <br>  15-40<br>  15-40                               | 3.7-9.0<br>7.0-20<br>20-45<br>15-45<br>15-40    | 4.5-6.5<br>4.5-7.3<br>4.5-7.3<br>5.1-7.8               | 0   0   0   0   0   0   0   0   0   0   | 0   0   0   0                         | 0 0                   | 0 0 0              |
| 70028:  Moko                          | 9-60<br>0-80<br>0-3<br>3-8                        | 9.0-25<br>25-58<br> <br> <br>  15-40<br>  15-40  | 7.0-20<br>20-45<br> <br> <br>  15-45<br>  15-40 | 4.5-7.3<br>4.5-7.3<br> <br> <br>  5.1-7.8<br>  6.1-7.8 | 0   0                                   | 0   0   0   0                         | 0 0                   | 0 0                |
| 70028:  Moko                          | 0-80<br>0-3<br>3-8                                | 25-58<br> <br> <br>  15-40<br>  15-40  | 20-45<br> <br> <br>  15-45<br>  15-40           | 4.5-7.3<br> <br> <br>  5.1-7.8<br>  6.1-7.8            |   | 0                                     | 0                     | 0<br> <br> <br>  0 |
| Moko                                  | 3-8   | 15-40  | 15-40   | 6.1-7.8  | ! .                                     |                                       | -                     |                    |
| Moko                                  | 3-8   | 15-40  | 15-40   | 6.1-7.8  | ! .                                     |                                       | -                     |                    |
| 3 8<br>Rock outcrop                   | 3-8   | 15-40  | 15-40   | 6.1-7.8  | ! .                                     |                                       | -                     |                    |
| Rock outcrop                          |   | !  | !   |  |   |                                       |                       |                    |
| 70029:  <br>Moko 0                    |   | :  |   |  | j j                                     |                                       |                       |                    |
| Moko 0                                |   | <br>   | <br>  |  | <br>                                    |                                       |                       |                    |
| Moko 0                                |   |  |   |  |   |                                       |                       |                    |
| · · · · · · · · · · · · · · · · · · · | 0-4   | 15-40  | 15-45   | <br>  5.1-7.8  | I 0 I                                   | 0                                     | 0                     |                    |
|                                       | 4-7   | 15-40  | 15-40   | 6.1-7.8  |   | 0                                     | 0                     |                    |
| · · · · · · · · · · · · · · · · · · · | 7-60  |  |   |  |   | 0                                     | 0                     | 0                  |
| Rock outcrop                          |   | <br>   | <br>  | <br>   | <br>                                    |                                       |                       |                    |
| 70046:                                |   | <br>   | <br>  |  | <br>                                    |                                       |                       |                    |
|                                       | 0-7   | 14-40  | 10-35   | 5.1-7.3  | <br>  0                                 | 0                                     | 0                     | 0                  |
|                                       | 7-13  | 14-40  | 10-35   | 5.1-7.3  |   | 0                                     | 0                     |                    |
| · · · · · · · · · · · · · · · · · · · | 3-27  | 18-35  | 13-30   | 4.5-7.3  |   | 0                                     | 0                     |                    |
|                                       | 7-60  | 18-35  | 13-30   | 5.6-7.8  |   | 0                                     | 0                     |                    |
| 2,                                    |   |  |   |  |   |                                       | · ·                   |                    |

Miller County, Missouri Chemical Properties of the Soils

| Map symbol<br>and soil name | Depth | Cation exchange capacity | Effective cation exchange capacity | Soil<br> reaction<br> | Calcium <br> carbon- <br>  ate | Gypsum  <br> <br> <br> | Salinity | Sodium adsorp- tion ratio |
|-----------------------------|-------|--------------------------|------------------------------------|-----------------------|--------------------------------|------------------------|----------|---------------------------|
| 72010.                      | In    | meq/100 g                | meq/100 g                          | <br>  pH              | Pct                            | Pct                    | mmhos/cm |                           |
| 73012:  <br>  Gravois       | 0-6   | 8.0-15                   | <br>  5.0-11                       | <br>  1               |                                | 0                      | 0        | l<br>l 0                  |
| Gravois                     |       | 1                        | 1                                  | 4.5-6.5               | 0                              | !                      | *        |                           |
|                             | 6-25  | 10-24                    | 6.0-19                             | 4.5-7.3               | 0                              | 0                      | 0<br>0   | 0                         |
|                             | 25-35 | 10-18                    | 6.0-14                             | 4.5-7.3               | 0                              |                        | 0        | 0                         |
|                             | 35-50 | 10-18                    | 6.0-14                             | 4.5-7.3               | 0                              | 0                      | 0        | 0                         |
|                             | 50-80 | 25-36                    | 25-40                              | 6.6-7.8               | 0                              | 0                      | Ü        | 0                         |
| 73035:                      |       |                          | <br>                               | <br>                  |                                |                        |          | -                         |
| Gravois                     | 0-6   | 8.0-15                   | 5.0-11                             | <br>  4.5-6.5         | l 0 l                          | 0                      | 0        |                           |
| GIAVOIS                     | 6-25  | 10-24                    | 6.0-19                             | 4.5-7.3               | 1 0 1                          | 0                      | 0        |                           |
| i                           | 25-35 | 10-18                    | 6.0-14                             | 4.5-7.3               |                                | 0 1                    | 0        |                           |
|                             | 35-50 | 10-18                    | 6.0-14                             | 4.5-7.3               | 1 0 1                          | 0 1                    | 0        | 0                         |
| i                           | 50-80 | 25-36                    | 25-40                              | 6.6-7.8               | 0  <br>  0                     | 0                      | 0        |                           |
| i                           | 30 00 | 25 50                    | 25 40                              | 1                     |                                | 0                      | O        |                           |
| 73040:                      |       |                          |                                    | <br>                  | i i                            |                        |          | i                         |
| Maplewood, eroded           | 0-8   | 12-25                    | 10-23                              | 5.1-7.3               | i o i                          | 0                      | 0        | 0                         |
| napreweed, ereaed           | 8-17  | 18-34                    | 13-29                              | 5.1-7.3               |                                | 0                      | 0        | 0                         |
| j                           | 17-32 | 12-25                    | 9.0-23                             | 5.6-7.8               | i o i                          | 0                      | 0        | 0                         |
|                             | 32-60 | 15-30                    | 14-30                              | 5.6-7.8               | i o i                          | 0                      | 0        | 0                         |
|                             |       |                          |                                    |                       | i i                            |                        |          |                           |
| 73041:                      |       |                          |                                    |                       | i i                            |                        |          | j                         |
| Maplewood, eroded           | 0-6   | 12-25                    | 10-23                              | 5.1-7.3               | i o i                          | o i                    | 0        | j o                       |
| · '                         | 6-17  | 18-34                    | 13-29                              | 5.1-7.3               | i o i                          | o i                    | 0        | j o                       |
|                             | 17-32 | 12-25                    | 9.0-23                             | 5.6-7.8               | i o i                          | 0                      | 0        | 0                         |
| j                           | 32-60 | 15-30                    | 14-30                              | 5.6-7.8               | i o i                          | o i                    | 0        | j o                       |
| j                           |       |                          |                                    |                       | i i                            | İ                      |          | j                         |
| 73042:                      |       | İ                        | j                                  |                       | j i                            | j                      |          | j                         |
| Niangua                     | 0-3   | 6.0-16                   | 3.0-13                             | 4.5-7.3               | j o j                          | 0                      | 0        | j o                       |
| İ                           | 3-14  | 6.0-15                   | 3.0-12                             | 4.5-6.0               | j o j                          | 0                      | 0        | j o                       |
| j                           | 14-52 | 30-55                    | 23-45                              | 5.1-7.3               | j o j                          | 0                      | 0        | j o                       |
|                             | 52-60 | j                        | i                                  | i                     | i i                            | o i                    | 0        | j o                       |

Miller County, Missouri Chemical Properties of the Soils

| Map symbol<br>and soil name | Depth       | Cation<br> exchange<br> capacity<br> | Effective<br>  cation<br> exchange<br> capacity | Soil<br>reaction | Calcium <br> carbon- <br>  ate  <br> | Gypsum  <br> <br> | Salinity | Sodium<br>  adsorp-<br>  tion<br>  ratio |
|-----------------------------|-------------|--------------------------------------|---|------------------|--------------------------------------|-------------------|----------|--|
| T2010 ( )                   | In          | meq/100 g                            | meq/100 g                                       | рН               | Pct                                  | Pct               | mmhos/cm |  |
| 73042: (cont)               | 0 4         |                                      | 15.05   | 4 5 7 2          |                                      | 0                 | 0        |  |
| Bardley                     | 0-4         | 20-30                                | 15-25   | 4.5-7.3          | 0                                    | 0                 | 0        | 0  |
|                             | 4-8         | 5.0-10                               | 2.0-7.0   | 4.5-6.5          | 0                                    | 0                 | 0        | 0  |
|                             | 8-27        | 30-50                                | 21-40   | 4.5-7.3          | 0                                    | 0                 | 0        | 0  |
|                             | 27-60       |                                      |   |                  |                                      | 0                 | 0        | 0  |
| 73047:                      |             | <br>                                 | <br>  |                  | <br>                                 |                   |          |  |
| Bardley                     | 0-4         | 20-30                                | 15-25   | 4.5-7.3          | i o i                                | 0                 | 0        | i o                                      |
| 1                           | 4-8         | 5.0-10                               | 2.0-7.0   | 4.5-6.5          | i o i                                | 0                 | 0        | i o                                      |
| j                           | 8-27        | 30-50                                | 21-40   | 4.5-7.3          | i o i                                | o i               | 0        | j o                                      |
| i                           | 27-60       | i                                    |   |                  | i i                                  | 0                 | 0        | 0  |
| Moko                        | 0-3         | 15-40                                | <br>  15-45                                     | 5.1-7.8          |                                      | 0                 | 0        |  |
| MOKO                        | 3-8         | 15-40                                | 15-45   | 6.1-7.8          | 0  <br>  0                           | 0                 | 0<br>0   | 0  |
|                             | 3-8<br>8-60 | 15-40                                | 15-40<br>                                       | 0.1-7.8          | 0  <br>                              | 0                 | 0        | ] 0                                      |
|                             | 8-60        |                                      |   |                  |                                      | U [               | U        | 0  |
| 73048:                      |             | <br>                                 |   |                  | <br>                                 |                   |          |  |
| Rueter                      | 0-3         | 2.0-11                               | 1.0-8.0   | 3.5-6.0          | i o i                                | 0                 | 0        | j o                                      |
| j                           | 3-14        | 4.0-10                               | 1.0-6.0   | 4.5-6.0          | i o i                                | 0                 | 0        | j o                                      |
| j                           | 14-45       | 2.0-12                               | 1.0-10  | 4.5-6.0          | i o i                                | 0                 | 0        | j o                                      |
|                             | 45-86       | 10-32                                | 7.0-29  | 3.5-6.0          | j o j                                | 0                 | 0        | 0  |
| 73050:                      |             | <br>                                 |   |                  |                                      |                   |          |  |
| Rock outcrop                |             |                                      |   |                  | <br>                                 | 0                 | 0        |  |
| Tioon oddoror               |             | İ                                    |   |                  | i i                                  | j                 | v        |  |
| Bardley                     | 0-4         | 20-30                                | 15-25   | 4.5-7.3          | i o i                                | 0                 | 0        | j o                                      |
| -<br>                       | 4-8         | 5.0-10                               | 2.0-7.0   | 4.5-6.5          | i o i                                | 0                 | 0        | j o                                      |
| i                           | 8-27        | 30-50                                | 21-40   | 4.5-7.3          | i o i                                | 0                 | 0        | 0  |
| i                           | 27-60       |                                      |   |                  | i i                                  | 0                 | 0        | j o                                      |

Miller County, Missouri Chemical Properties of the Soils

| Map symbol<br>and soil name | Depth | Cation exchange capacity | Effective<br>  cation<br> exchange<br> capacity | Soil<br> reaction<br> | Calcium<br> carbon-<br>  ate | Gypsum | Salinity | Sodium<br>  adsorp-<br>  tion<br>  ratio |
|-----------------------------|-------|--------------------------|---|-----------------------|------------------------------|--------|----------|--|
| 73088:                      | In    | meq/100 g                | meq/100 g                                       |                       | Pct                          | Pct    | mmhos/cm | _  |
| Rueter                      | 0-3   | 2.0-11                   | 1.0-8.0   | <br>  2 E 6 0         | 1 0 1                        | 0      | 0        | 0  |
| Rueter                      | _     |                          | 1   | 3.5-6.0               | ! - !                        | -      | 0        |  |
|                             | 3-14  | 4.0-10                   | 1.0-6.0   | 3.5-6.0               | 0                            | 0      | 0        | 0  |
|                             | 14-45 | 2.0-12                   | 1.0-10  | 3.5-6.0               | 0                            | 0      | 0        | 0  |
|                             | 45-80 | 10-32                    | 7.0-29  | 3.5-6.0               | 0                            | U      | U        | 0  |
| 73089:                      |       | 1                        | <br>  |                       |                              |        |          |  |
| Rueter                      | 0-3   | 2.0-11                   | 1.0-8.0   | 3.5-6.0               | i o i                        | 0      | 0        | 0  |
|                             | 3-14  | 4.0-10                   | 1.0-6.0   | 3.5-6.0               | j o j                        | 0      | 0        | 0  |
|                             | 14-45 | 2.0-12                   | 1.0-10  | 3.5-6.0               | i o i                        | 0      | 0        | j o                                      |
| İ                           | 45-80 | 10-32                    | 7.0-29  | 3.5-6.0               | j o j                        | 0      | 0        | j o                                      |
| 73090:                      |       |                          |   |                       |                              |        |          |  |
| Useful                      | 0-7   | 10-17                    | 7.0-14  | <br>  5.1-6.5         | 1 0 1                        | 0      | 0        | 0  |
| USEIUI                      | 7-31  | 18-23                    | 15-20   | 4.5-7.3               |                              | 0      | 0        | 0  |
|                             | 31-45 | 18-30                    | 15-27   | 4.5-7.8               |                              | 0      | 0        | 0  |
|                             | 45-53 | 18-30                    | 15-27   | 4.5-8.4               |                              | 0      | 0        | 0  |
|                             | 53-60 |                          | 15 27   |                       |                              | 0      | 0        | 0  |
|                             |       | ļ                        |   |                       | į į                          |        |          | İ  |
| 73093:<br>  Gatewood        | 0-2   | 10-30                    | <br>  9.0-29                                    | <br>  5.1-7.3         | <br>  0                      | 0      | 0        | 0  |
| Gatewood                    | 2-10  | 10-30                    | 9.0-29  | 5.1-7.3               | ! !                          | 0      | 0        | !  |
|                             | 10-28 | 30-44                    | 27-41   | 5.1-7.3               |                              | 0      | 0        | 0  |
|                             | 28-60 | 30-44                    | 2/-41   | 5.1-7.8               | 1 1                          | 0      | 0        | 0<br>  0                                 |
|                             | 20-00 |                          |   | <br>                  |                              | U      | U        | 0  |
| 73094:                      |       |                          | <br>  |                       |                              |        |          |  |
| Gatewood                    | 0-2   | 10-30                    | 9.0-29  | 5.1-7.3               | i o i                        | 0      | 0        | 0  |
|                             | 2-10  | 10-18                    | 8.0-16  | 5.1-7.3               |                              | 0      | 0        | 0  |
|                             | 10-28 | 30-44                    | 27-41   | 5.1-7.8               |                              | 0      | 0        | 0  |
|                             | 28-60 |                          |   |                       |                              | 0      | 0        | 0  |

Miller County, Missouri Chemical Properties of the Soils

| Map symbol<br>and soil name | Depth | Cation<br> exchange<br> capacity<br> | Effective<br>  cation<br> exchange<br> capacity | Soil<br>reaction | Calcium <br> carbon-<br>  ate<br> | Gypsum | Salinity<br> <br> | Sodium<br>  adsorp-<br>  tion<br>  ratio |
|-----------------------------|-------|--------------------------------------|---|------------------|-----------------------------------|--------|-------------------|--|
|                             | In    | meq/100 g                            | meq/100 g                                       | Нд               | Pct                               | Pct    | mmhos/cm          | -  |
| 73099:                      | 0 0   |                                      |   |                  |                                   | 0      |                   |  |
| Plato                       | 0-8   | 6.0-16                               | 4.0-13  | 5.1-7.3          | 0                                 | 0      | 0                 | 0  |
|                             | 8-20  | 14-30                                | 8.0-24  | 3.5-6.0          | 0                                 | 0      | 0                 | 0  |
|                             | 20-48 | 10-16                                | 7.0-13  | 3.5-6.0          | 0                                 | 0      | 0                 | 0  |
|                             | 48-60 | 18-36                                | 14-32   | 4.5-6.0          | 0                                 | 0      | 0                 | 0  |
| 73104:                      |       |                                      |   |                  |                                   |        |                   |  |
| Wrengart, eroded            | 0-5   | 7.0-14                               | 3.0-12  | 5.1-7.3          | j 0 j                             | 0      | 0                 | 0  |
| İ                           | 5-30  | 15-26                                | 11-21   | 4.5-7.3          | 0                                 | 0      | 0                 | 0  |
| ĺ                           | 30-62 | 11-22                                | 7.0-18  | 4.5-7.3          | 0                                 | 0      | 0                 | 0  |
| ļ                           | 62-80 | 24-40                                | 19-35   | 5.1-7.8          | 0                                 | 0      | 0                 | 0  |
| 73112:                      |       | <br>                                 | <br>  |                  |                                   |        |                   |  |
| Gunlock                     | 0-5   | 8.0-15                               | 5.0-12  | 5.1-7.3          | 1 0 1                             | 0      | 0                 | 0  |
|                             | 5-25  | 18-24                                | 14-20   | 4.5-7.3          |                                   | 0      | 0                 |  |
| i                           | 25-43 | 10-18                                | 7.0-14  | 4.5-7.3          | 0 1                               | 0      | 0                 |  |
| i                           | 43-55 | 18-34                                | 14-29   | 4.5-7.8          |                                   | 0      | 0                 | 0  |
|                             | 55-80 | 25-36                                | 20-32   | 4.5-7.8          | 0                                 | 0      | 0                 | 0  |
| 73136:                      |       |                                      |   |                  |                                   |        |                   |  |
| Union                       | 0-9   | <br>  6.0-16                         | 4.0-14  | 4.5-6.5          | 1 0 1                             | 0      | )<br>  0          | 0  |
|                             | 9-30  | 14-24                                | 10-20   | 3.5-5.5          | 0 1                               | 0      | 0                 | 0  |
| i                           | 30-53 | 8.0-18                               | 5.0-15  | 3.5-5.5          |                                   | 0      | 0                 |  |
|                             | 53-80 | 20-40                                | 15-35   | 4.5-6.5          | 0                                 | 0      | 0                 | 0  |
| 73190:                      |       |                                      |   |                  |                                   |        |                   |  |
| Winnipeg, eroded            | 0-6   | <br>  7.0-12                         | <br>  4.0-10                                    | 4.5-7.3          | 1 0 1                             | 0      | )<br>  0          | 0  |
|                             | 6-28  | 5.0-12                               | 3.0-10  | 4.5-7.3          |                                   | 0      | 0                 |  |
| ŀ                           | 28-48 | 12-18                                | 8.0-14  | 4.5-7.3          |                                   | 0      | 0                 | 0  |
| · ·                         | 48-80 | 10-20                                | 7.0-15  | 4.5-7.3          |                                   | 0      | 0                 |  |

## Miller County, Missouri Chemical Properties of the Soils

| Map symbol<br>and soil name | Depth<br> <br> <br> | Cation<br> exchange<br> capacity<br> | Effective<br>  cation<br> exchange<br> capacity | Soil<br>reaction | Calcium <br> carbon-<br>  ate | Gypsum | Salinity | Sodium<br>  adsorp-<br>  tion<br>  ratio |
|-----------------------------|---------------------|--------------------------------------|---|------------------|-------------------------------|--------|----------|--|
| 2052                        | In                  | meq/100 g                            | meq/100 g                                       | <br>  pH         | Pct                           | Pct    | mmhos/cm |  |
| 3250:<br>Gatewood           |                     | 10.20                                |   |                  |                               | 0      | 0        |  |
| Gatewood                    | 0-3                 | 10-30                                | 5.0-25  | 5.1-7.3          | 0                             | 0      | 0<br>0   | 0  |
|                             | 3-9                 | 8.0-15                               | 3.0-10  | 5.1-7.3          | 0                             | 0      | · ·      | 0  |
|                             | 9-24                | 30-50                                | 25-45   | 5.1-7.8          | 0                             | 0      | 0        | 0  |
|                             | 24-60<br>           |                                      |   | <br>             |                               | 0      | 0        | 0  |
| Moko                        | 0-3                 | 15-40                                | 15-45   | 5.1-7.8          | 0                             | 0      | 0        | 0  |
|                             | 3-8                 | 15-40                                | 15-40   | 6.1-7.8          | i o i                         | 0      | 0        | j o                                      |
|                             | 8-60                |                                      | j   |                  | j j                           | 0      | 0        | 0  |
| 3251:                       |                     |                                      |   |                  | <br>                          |        |          |  |
| Gatewood                    | 0-3                 | 10-30                                | 5.0-25  | 5.1-7.3          | l 0 l                         | 0      | 0        | 0  |
| Gatewood                    | 3-9                 | 8.0-15                               | 3.0-10  | 5.1-7.3          | 1 0 1                         | 0      | 0        |  |
|                             | 9-24                | 30-50                                | 25-45   | 5.1-7.8          |                               | 0      | 0        | 0  |
|                             | 24-60               |                                      |   |                  |                               | 0      | 0        | 0  |
| Moko                        | <br>  0-3           | 15-40                                | 15-45   | <br>  5.1-7.8    |                               | 0      | 0        |  |
| MOKO                        | 0-3<br>  3-8        | 15-40                                | 15-45   | 6.1-7.8          | 1 0 1                         | 0      | 0        |  |
|                             | 3-8<br>  8-60       | 15-40                                | 15-40   | 0.1-7.8          | 0                             | 0      | 0        | 0  |
| 2050.                       |                     |                                      | İ   |                  | į į                           |        |          | į  |
| 3252: Pomme, eroded         | <br>  0-5           | 5.0-12                               | 3.0-8.0   | <br>  4.5-7.3    | <br>  0                       | 0      | 0        | l<br>l 0                                 |
| Tolline, Croaca             | 5-22                | 8.0-18                               | 3.0-13  | 5.6-7.3          |                               | 0      | 0        | 0  |
|                             | 22-42               | 8.0-18                               | 3.0-15  | 5.1-7.3          |                               | 0      | 0        | 0  |
|                             | 42-80               | 30-50                                | 28-48   | 4.5-7.3          |                               | 0      | 0        | 0  |
| 2052.                       |                     |                                      |   |                  |                               |        |          |  |
| 3253:<br>Ocie               | <br>  0-3           | 10-25                                | <br>  7.0-20                                    | <br>  4.5-6.5    | <br>  0                       | 0      | 0        | 0  |
| 0016                        | 0-3<br>  3-13       | 3.0-8.0                              | 2.0-6.0   | 4.5-6.5          |                               | 0      | 0        |  |
|                             | 3-13                | 4.0-12                               | 2.0-0.0   | 4.5-6.5          | 1 0 1                         | 0      | 0        |  |
|                             | 20-48               | 15-40                                | 15-35   | 4.5-6.5          |                               | 0      | 0        |  |
|                             | 1                   | !                                    | !   |                  |                               |        | •        | !  |
|                             | 48-80               |                                      |   |                  |                               | 0      | 0        | 0  |

### Miller County, Missouri Chemical Properties of the Soils

| Map symbol and soil name | Depth | Cation<br> exchange | Effective<br>  cation | Soil<br> reaction | Calcium <br> carbon- | Gypsum | Salinity | Sodium  |
|--------------------------|-------|---------------------|-----------------------|-------------------|----------------------|--------|----------|---------|
| and soll name            |       | capacity            | exchange              | reaction          | ate                  |        |          | adsorp- |
|                          |       | capacity            | capacity              | <br>              | ace  <br>            |        |          | ratio   |
|                          |       | İ                   |                       | İ                 | İi                   |        |          |         |
|                          | In    | meq/100 g           | meq/100 g             | Hq                | Pct                  | Pct    | mmhos/cm |         |
| 3254:                    |       |                     |                       |                   |                      |        |          |         |
| Ocie                     | 0-3   | 10-25               | 7.0-20                | 4.5-6.5           | 0                    | 0      | 0        | 0       |
|                          | 3-13  | 3.0-8.0             | 2.0-6.0               | 4.5-6.5           | 0                    | 0      | 0        | 0       |
|                          | 13-20 | 4.0-12              | 2.0-10                | 4.5-6.5           | 0                    | 0      | 0        | 0       |
|                          | 20-48 | 15-40               | 15-35                 | 4.5-7.8           | 0                    | 0      | 0        | 0       |
|                          | 48-80 |                     |                       |                   |                      | 0      | 0        | 0       |
| 3255:                    |       |                     | <br>                  | <br>              | <br>                 |        |          |         |
| Ocie                     | 0-7   | 10-25               | 7.0-20                | 4.5-6.5           |                      | 0      | 0        | 0       |
|                          | 7-16  | 3.0-8.0             | 2.0-6.0               | 4.5-6.5           | i o i                | 0      | 0        | j o     |
|                          | 16-23 | 6.0-12              | 4.0-10                | 4.5-6.5           | j o j                | 0      | 0        | 0       |
|                          | 23-58 | 15-40               | 15-35                 | 4.5-7.8           | i o i                | 0      | 0        | j o     |
|                          | 58-80 |                     | ļ                     | ļ                 | j j                  | 0      | 0        | 0       |
| 3256:                    |       |                     |                       | <br>              |                      |        |          |         |
| 3250.<br>Arkana          | 0-8   | 5.0-15              | 3.0-10                | <br>  4.5-6.5     | l 0 l                | 0      | 0        | 1 0     |
| ni nara                  | 8-14  | 5.0-15              | 3.0-10                | 4.5-6.5           |                      | 0      | 0        |         |
|                          | 14-33 | 25-50               | 20-45                 | 4.5-7.8           |                      | 0      | 0        | 0       |
|                          | 33-60 |                     |                       |                   |                      | 0      | 0        | 0       |
|                          |       | į                   | į                     | į                 | į į                  |        |          | į       |
| 4634:                    |       |                     |                       |                   |                      |        |          |         |
| Hartville                | 0-7   | 10-16               | 9.0-15                | 4.5-7.3           | 0                    | 0      | 0        | 0       |
|                          | 7-12  | 9.0-20              | 7.0-18                | 4.5-6.5           | 0                    | 0      | 0        | 0       |
|                          | 12-48 | 18-25               | 14-21                 | 4.5-7.8           | 0                    | 0      | 0        | 0       |
|                          | 48-80 | 16-25               | 15-24                 | 5.6-8.4           | 0                    | 0      | 0        | 0       |
|                          |       |                     |                       | <br>              | <br>                 |        |          |         |
| 4678:                    |       |                     | ĺ                     | İ                 | į į                  |        |          | İ       |
| Racoon                   | 0-6   | 10-20               | 6.0-16                | 4.5-7.3           | 0                    | 0      | 0        | 0       |
|                          | 6-28  | 5.0-16              | 3.0-14                | 4.5-7.3           | 0                    | 0      | 0        | 0       |
|                          | 28-58 | 10-23               | 6.0-20                | 4.5-5.5           | 0                    | 0      | 0        | 0       |
|                          | 58-80 | 20-35               | 13-28                 | 4.5-5.5           | 0                    | 0      | 0        | 0       |

Miller County, Missouri Chemical Properties of the Soils

| Map symbol<br>and soil name<br> <br> | Depth | Cation<br> exchange<br> capacity<br> | Effective<br>  cation<br> exchange<br> capacity | Soil<br>reaction     | Calcium <br> carbon- <br>  ate | Gypsum  <br> <br> <br> | Salinity | Sodium adsorp- tion ratio |
|--------------------------------------|-------|--------------------------------------|---|----------------------|--------------------------------|------------------------|----------|---------------------------|
|                                      | In    | meq/100 g                            | <br> meq/100 g                                  |                      | Pct                            | Pct                    | mmhos/cm | _                         |
| 75376:                               |       |                                      |   |                      |                                | . !                    | _        |                           |
| Cedargap                             | 0-9   | 7.0-17                               | 5.0-14  | 5.1-7.3              | 0                              | 0                      | 0        | 0                         |
|                                      | 9-18  | 10-20                                | 7.0-15  | 5.1-7.3              | 0                              | 0                      | 0        | 0                         |
|                                      | 18-49 | 10-20                                | 7.0-15  | 5.1-7.3              | 0                              | 0                      | 0        | 0                         |
|                                      | 49-60 | 18-40                                | 15-36   | 5.6-7.3              | 0                              | 0                      | 0        | 0                         |
| 75378:                               |       | ]<br>                                |   |                      |                                |                        |          |                           |
| Sturkie                              | 0-9   | 10-30                                | 10-30   | 5.6-7.3              |                                | 0                      | 0        | 0                         |
| j                                    | 9-19  | 10-30                                | 10-30   | 5.6-7.3              | i o i                          | o i                    | 0        | j o                       |
|                                      | 19-60 | 10-30                                | 10-30   | 5.6-7.3              | 0                              | 0                      | 0        | 0                         |
| 75385:                               |       | <br>                                 |   |                      |                                |                        |          |                           |
| Gabriel                              | 0-14  | <br>  15-25                          | 10-19   | 6.1-7.3              | l 0 l                          | 0                      | 0        |                           |
| Gabrier                              | 14-29 | 15-25                                | 10-19   | 5.1-7.3              | 0  <br>  0                     | 0                      | 0        | 0                         |
|                                      | 29-80 | 15-25                                | 10-19   | 5.1-7.3              | 1 0 1                          | 0                      | 0        | 1 0                       |
|                                      | 29-00 | 15-25                                | 10-22   | 5.1-7.3              |                                | 0                      | U        |                           |
| 75387:                               |       | j                                    |   |                      | i i                            | j                      |          |                           |
| Hacreek                              | 0-9   | 20-30                                | 20-30   | 5.6-7.3              | 0                              | 0                      | 0        | 0                         |
|                                      | 9-21  | 25-35                                | 25-35   | 5.1-7.8              | 0                              | 0                      | 0        | 0                         |
|                                      | 21-28 | 20-30                                | 20-30   | 5.1-7.8              | 0                              | 0                      | 0        | 0                         |
|                                      | 28-70 | 20-30                                | 20-30   | 5.1-7.8              | 0                              | 0                      | 0        | 0                         |
|                                      | 70-81 | 20-30                                | 20-30   | 5.1-7.8              | 0                              | 0                      | 0        | 0                         |
| <br>75395:                           |       | <br>                                 |   |                      | <br>                           |                        |          |                           |
| Jamesfin                             | 0-10  | 6.0-20                               | 4.0-18  | 5.6-7.8              |                                | 0                      | 0        | 0                         |
|                                      | 10-60 | 6.0-20                               | 5.0-19  | 4.5-7.8              |                                | 0                      | 0        | 0                         |
| 75399:                               |       |                                      |   |                      |                                |                        |          |                           |
| /5399:<br>  Jamesfin                 | 0-10  | 6.0-20                               | 4.0-18  | <br>  5.6-7.8        |                                | 0                      | 0        |                           |
| JamesIIII                            | 10-10 | 6.0-20                               | 4.0-18<br>  5.0-19                              | 5.6-7.8<br>  4.5-7.8 | 0  <br>  0                     | 0                      | 0<br>0   | 0                         |

Miller County, Missouri Chemical Properties of the Soils

| Map symbol<br>and soil name | Depth<br>  | Cation<br> exchange<br> capacity<br> | Effective<br>  cation<br> exchange<br> capacity | Soil<br> reaction<br> <br> | Calcium <br> carbon-<br>  ate | Gypsum  <br> <br> <br> | Salinity | Sodium adsorp- tion ratio |
|-----------------------------|------------|--------------------------------------|---|----------------------------|-------------------------------|------------------------|----------|---------------------------|
|                             | In         | meq/100 g                            | meq/100 g                                       | рН                         | Pct                           | Pct                    | mmhos/cm | _                         |
| 75400:                      |            | 10.05                                |   |                            |                               |                        | •        |                           |
| Gladden                     | 0-6        | 10-25                                | 8.0-23  | 4.5-7.3                    | 0                             | 0                      | 0        | 0                         |
|                             | 6-38       | 8.0-20                               | 7.0-19  | 4.5-7.3                    | 0                             | 0                      | 0        | 0                         |
|                             | 38-60      | 3.0-12                               | 3.0-12  | 4.5-7.3                    | 0                             | 0                      | 0        | 0                         |
| 75415:                      |            |                                      | i   | <br>                       |                               |                        |          |                           |
| Jemerson                    | 0-9        | 8.0-16                               | 3.0-12  | 5.1-7.3                    | 0                             | 0                      | 0        | 0                         |
|                             | 9-50       | 12-18                                | 8.0-15  | 5.1-7.3                    | 0                             | 0                      | 0        | 0                         |
|                             | 50-60      | 12-18                                | 6.0-15  | 4.5-7.3                    | 0                             | 0                      | 0        | 0                         |
| 75421:                      |            |                                      | <br>  | <br>                       |                               |                        |          |                           |
| Racket                      | 0-10       | 8.0-18                               | 5.0-14  | 6.1-7.3                    | i o i                         | o İ                    | 0        | i o                       |
|                             | 10-38      | 10-20                                | 7.0-15  | 5.1-7.3                    | i o i                         | o i                    | 0        | 0                         |
|                             | 38-60      | 6.0-16                               | 4.0-10  | 6.1-7.3                    | 0                             | 0                      | 0        | 0                         |
| 75425:                      |            |                                      | <br>  | <br>                       |                               |                        |          |                           |
| Cedargap                    | 0-9        | 7.0-17                               | 5.0-14  | 5.1-7.3                    | i o i                         | o İ                    | 0        | 0                         |
| 3 1                         | 9-18       | 10-20                                | 7.0-15  | 5.1-7.3                    | i o i                         | o i                    | 0        | 0                         |
|                             | 18-49      | 10-20                                | 7.0-15  | 5.1-7.3                    | j o j                         | 0                      | 0        | 0                         |
|                             | 49-60      | 18-40                                | 15-36   | 5.6-7.3                    | 0                             | 0                      | 0        | 0                         |
| Pomme                       | l<br>l 0-7 | 5.0-12                               | 3.0-8.0   | <br>  4.5-7.3              |                               | 0                      | 0        | 1 0                       |
|                             | 7-22       | 8.0-18                               | 3.0-13  | 5.6-7.3                    |                               | 0                      | 0        | 0                         |
|                             | 22-42      | 8.0-18                               | 3.0-15  | 5.1-7.3                    | 0 1                           | 0                      | 0        | 0                         |
|                             | 42-80      | 30-50                                | 28-48   | 4.5-7.3                    | 0                             | 0                      | 0        | 0                         |
|                             |            |                                      | <br>  | <br>                       |                               |                        |          |                           |
| 75453:                      |            |                                      | j   | j                          | i i                           | İ                      |          | j                         |
| Sturkie                     | 0-8        | 10-30                                | 10-30   | 5.6-7.8                    | 0                             | 0                      | 0        | 0                         |
|                             | 8-28       | 10-30                                | 10-30   | 5.6-7.8                    | 0                             | 0                      | 0        | 0                         |
|                             | 28-80      | 10-30                                | 10-30   | 5.6-8.4                    | 0                             | 0                      | 0        | 0                         |

### Miller County, Missouri Chemical Properties of the Soils

| Map symbol and soil name | <br>  Depth<br> <br> | Cation<br>exchange<br>capacity | <br> Effective<br>  cation<br> exchange<br> capacity | <br>  Soil<br> reaction<br> | <br> Calcium<br> carbon-<br>  ate | Gypsum | Salinity | Sodium<br>  adsorp-<br>  tion<br>  ratio |
|--------------------------|----------------------|--------------------------------|--|-----------------------------|-----------------------------------|--------|----------|--|
|                          | <br>  In             | <br> meg/100 g                 | <br> meq/100 g                                       | <br>  pH                    | Pct                               | Pct    | mmhos/cm | _  |
| 75455:                   | İ                    |                                | 1, 1,  | -                           |                                   |        |          |  |
| Gabriel                  | 0-11                 | 15-30                          | 10-25  | 6.1-7.3                     | 0                                 | 0      | 0        | j o                                      |
|                          | 11-23                | 15-25                          | 10-20  | 5.1-7.3                     | 0                                 | 0      | 0        | j o                                      |
|                          | 23-46                | 15-30                          | 10-25  | 5.1-7.3                     | 0                                 | 0      | 0        | 0  |
|                          | 46-80                | 15-35                          | 10-30  | 5.1-7.3                     | 0                                 | 0      | 0        | 0  |
| 99000:                   | <br>                 |                                | <br>   | <br>                        |                                   |        |          |  |
| Pits, quarries           |                      |                                |  |                             |                                   |        |          |  |
| 99001:                   | <br>                 |                                | <br>   | <br>                        |                                   |        |          |  |
| Water                    |                      |                                |  |                             |                                   |        |          |  |
| 99007:                   | <br>                 |                                | <br>   | <br>                        |                                   |        |          |  |
| DAM                      |                      |                                |  |                             |                                   |        |          |  |
|                          |                      |                                | <br>   |                             |                                   |        |          |  |
|                          |                      | l —————                        |  | l —————                     |                                   |        |          | _  |